

We claim:

1. An image communication apparatus to which a data processing terminal is connectable, said apparatus comprising:

data communication means for communicating image data via a data communication link;

data converting means for converting image data received from said data communication means and character data received from the data processing terminal to provide converted data; and

data reproducing means for reproducing the converted data.

2. An image communication apparatus according to claim 1, further comprising interface means for relaying data between said data communication means and said data converting means.

3. An image communication apparatus according to claim 1, wherein said data communication means includes reading means for reading an original document.

4. An image communication apparatus according to claim 1, wherein said data communication means includes a modem for modulating and demodulating signals.

5. An image communication apparatus capable of being connected to a data processing terminal, comprising:

data communication means for communicating data via a communication link,

data converting means for converting received data from said data communication means and data received from the data processing terminal into bit map image data; and

data reproducing means for reproducing the bit map image data.

6. An image communication apparatus according to claim 5, further comprising a first memory for storing plural pages of image data, a second memory for storage at least a page of bit map image data, and sending means for sending data to the data processing terminal.

7. An image communication apparatus according to claim 6, wherein said data communication means includes reading means for reading image data, and further comprising control means for controlling a storage operation of read image data into said first memory and said second memory, and for controlling a sending operation by said sending means.

8. An image communication apparatus according to claim 7, wherein said data communication means has plural processing modes, and wherein said control means selects one of a storage operation to said first memory, a storage operation to said second memory and the sending operation in response to one of a mode of said data communication means and an instruction from said data processing terminal.

9. An image communication apparatus according to claim 7, wherein said control means stores read image data into said first memory until a number of pages of read image data becomes a predetermined value, and causes said sending means to send read image data over the predetermined value to said data processing terminal.

10. An image communication apparatus according to claim 7, wherein said control means stores the read image data into said first memory until an amount of the read image data becomes a predetermined value, and causes said sending means to send the read image data

over the predetermined value to said data processing terminal.

11. An image communication apparatus according to claim 5, further comprising interface means for relaying data between said data communication means and said data converting means.

12. An image communication apparatus according to claim 7, further comprising detecting means for detecting a page number of a document sent in said reading means, and

wherein said control means causes said sending means to send the read image data to said data processing terminal in accordance with the page number detected by said detecting means.

13. An image communication apparatus according to claim 11, wherein said interface means includes command buffer means for receiving command information from said data converting means and for sending the command information to said data communication means,

response buffer means for receiving response information corresponding to the command information from said data communication means, and for sending the response information to said data converting means, and

data buffer means for relaying image data between said data communication means and said data converting means.

14. An image communication apparatus according to claim 13, wherein said interface means further includes buffer control means for controlling data writing operations to each of said command, response and data buffer means and data reading operation from each said buffer means, wherein said control means informs said data converting means and said data communication means

whether or not to write data into each said buffer means and whether or not to read data from each said buffer means.

15. An image communication apparatus according to claim 14, wherein said buffer control means selects one of said command, response and data buffer means in accordance with a writing signal, a reading signal and an address signal from said data communication means or said data converting means.

16. An image communication apparatus according to claim 11, further comprising input means for inputting respective operation information to said data communication means and said data converting means, and display means for displaying respective display information from said data communication means and said data converting means,

wherein said interface means includes display buffer means for relaying the display information between said data communication means and said data converting means, and key buffer means for relaying the operation information between said data converting means and said data communication means.

17. An image communication apparatus according to claim 16, wherein said data communication means controls said input means and said display means and wherein said display buffer means receives the display information from said data converting means and sends the received display information to said data communication means, and

wherein said key buffer means receives the operation information from said data communication means and send the received operation information to said data converting means.

18. An image communication apparatus according to claim 13, wherein said data buffer means includes at least two line buffers.

19. An image communication apparatus according to claim 18, wherein said interface means further includes means for switching a data transfer direction by said data buffer means.

20. An image communication apparatus according to claim 11, wherein each of said data communication means and said data converting means have means for directly communicating predetermined information with the other one without going through said interface means.

21. An image communication apparatus according to claim 20, wherein said predetermined information relates to condition information of said data converting means and said data communication means.

22. An image communication apparatus to which a data processing terminal is connectable, comprising:

data communication means for communicating data;

data converting means for converting data from said data communication means and data from the data processing terminal into bit map image data;

interface means for relaying data between said data communication means and said data converting means; and

key input means for inputting operation information,

wherein said key input means is controlled by one of said data communication means and said data converting means, and

wherein one of said data communication means and said data converting means sends the operation information input by said key input means to the other

one of said data communication means and said data converting means through said interface means.

23. An image communication apparatus according to claim 22, wherein while one of said data communications means and said data converting means is being operated, at least a part of operation information relating to the other one of said data communication means and said data converting means is made ineffective.

24. An image communication apparatus according to claim 22, wherein said key input means is controlled by said data communication means.

25. An image communication apparatus according to claim 22, further comprising selecting means for selecting one of a first mode, in which said data communication means controls said key input means, and a second mode, in which said data converting means controls said key input means.

26. An image communication apparatus according to claim 22, wherein said data converting means analyzes commands from said data processing terminal, and sends commands to said data communication means in accordance with the analysis of the commands from said data processing terminal.

27. An image communication apparatus according to claim 26, wherein the commands from said data processing terminal are commands according to a page description language.

28. An image communication apparatus according to claim 26, further comprising reproducing means for reproducing the bit map image data.

29. An image communication apparatus according to claim 28, wherein said data converting means causes said reproducing means to reproduce the bit map image data, sends the bit map image data to said data communication means, or sends the data from said data processing terminal to said data communication means without converting it into bit map image data, in accordance with the analysis.

30. An image communication apparatus according to claim 29, wherein said data converting means receives information data relating to data communication from the data processing terminal, and sends the information data to said communication means without converting it into bit map image data.

31. An image communication apparatus according to claim 29, wherein said data communication means includes means for converting a pixel density of image data to be sent to a destination in accordance with a function of the destination.

32. An image communication apparatus according to claim 29, wherein said data converting means causes said reproducing means to reproduce the bit map image data to be sent by said data communication means.

33. An image communication apparatus according to claim 29, wherein information data relating to data communication is sent from said data processing terminal to said data communication means without going through said data converting means.

34. An image communication apparatus according to claim 22, further comprising display means for displaying information,

wherein said display means is controlled by one of said data communication means and said data converting means.

35. An image communication apparatus according to claim 34, wherein one of said data communication means and said data converting means controls said display means in accordance with information for display sent from the other one of said data communication means and said data converting means.

36. An image communication apparatus to which a data processing terminal is connectable, comprising:

- data communication means for communicating data;
- data converting means for converting data from said data communication means and data from the data processing terminal into bit map image data; and
- reproducing means for reproducing the bit map image data,

wherein while said data converting means is performing a data process with said data processing terminal, said data communication means performs a receiving operation in response to a request from a destination, and stores received data into a storage memory.

37. An image communication apparatus according to claim 36, wherein said data communication means checks whether said reproducing means is ready to print data from said data communication means or not, and sends received data to said reproducing means without going through said data converting means so as to reproduce the received data when said reproducing means is ready to print the data.

38. An image communication apparatus to which a data processing terminal is connectable, comprising:

data communication means for communicating data;
data converting means for selectively converting data from said data communication means and data from the data processing terminal into bit map image data;
reproducing means for reproducing the bit map image data; and

control means for switching between a first data transferring operation between said data communication means and said data converting means, and a second data transferring operation between the data processing terminal and said data converting means.

39. An image communication apparatus according to claim 38, wherein said control means has a first mode in which it shifts from the first data transferring operation to the second data transferring operation in response to a request from said data processing terminal while the first data transferring operation is in operation.

40. An image communication apparatus according to claim 38, wherein said control means has a second mode in which it shifts from the second data transferring operation to the first data transferring operation in response to a request from said data communication means while the second data transferring operation is in operation.

41. An image communication apparatus according to claim 38, wherein said control means has a third mode which is to shift from the second data transferring operation to the first data transferring operation in response to a request from said data communication means while the second data transferring operation is in operation, and further starts the second data transferring operation after finishing the first data transferring operation when a request is received from

the data processing terminal during the first data transferring operation.

42. An image communication apparatus according to claim 38, wherein said control means has a fourth mode in which it shifts from the first data transferring operation to the second data transferring operation in response to a request from the data processing terminal while the first data transferring operation is in operation, and further starts the first data transferring operation after finishing the second data transferring operation when a request is received from said data communication means during the second data transferring operation.

43. An image communication apparatus according to claim 38, further comprising a storage memory for storing data received by said data communication means, and wherein said control means switches between the first data transferring operation and the second data transferring operation in accordance with an amount of available memory area of said storage memory.

44. An image communication apparatus according to claim 38, wherein said reproducing means reproduces the bit map image data so as to distinguish between data sent by said data communication means and data sent by the data processing terminal.

45. An image communication apparatus according to claim 38, wherein said control means has a fifth mode in which it sends the data received by said data communication means to the data processing terminal, and a sixth mode in which it reproduces the received data using said reproducing means.

46. An image communication apparatus according to claim 45, wherein said control means selects the fifth mode or the sixth mode in accordance with a destination from which the data was received.

47. An image communication apparatus according to claim 45, wherein said control means selects the fifth mode or the sixth mode in accordance with a predetermined time.

48. An image communication apparatus according to claim 45, wherein said control means selects the fifth mode when said reproducing means is in an abnormal condition.

49. An image communication apparatus according to claim 45, wherein said control means selects the fifth mode or the sixth mode in accordance with a condition of the data processing terminal.

50. An image communication apparatus according to claim 38, wherein said data communication means includes a storage memory for storing received data, and releases a memory area of said storage memory in accordance with a reproducing operation or a sending operation of the data from said storage memory.

51. An image communication apparatus according to claim 38, wherein said control means switches between the first data transferring operation and the second data transferring operation in page units.

52. An image communication apparatus to which a data processing terminal is connectable, comprising:
data communication means for communicating data;

data converting means for converting data from said data communication means and data from the data processing terminal into bit map image data; and

reproducing means for reproducing the bit map image data,

wherein said data converting means receives command information according to a page description language from the data processing terminal, and converts the command information into command data for said data communication means, and wherein said data communication means performs data communication in accordance with the command data from said data converting means.

53. An image communication apparatus to which a data processing terminal is connectable, comprising:

data communication means for communicating data, wherein said data communication means includes means for generating communication managing information in character data form;

data converting means for converting data from said data communication means and data from said data processing terminal into bit map image data; and

reproducing means for reproducing the bit map image data,

wherein said data converting means sends data received from said data communication means to the data processing terminal.

54. An image communication apparatus according to claim 53, wherein said data communication means receives character data and image data.

55. A data converting method in a data communication apparatus to which a data processing terminal is connectable, comprising the steps of:

converting image data received in data communication from a destination into bit map image data using a data converting unit;

converting data from the data processing terminal into bit map image data using the data converting unit; and

reproducing the bit map image data using a data reproducing unit.

56. An image communication apparatus to which a data processing terminal is connectable, comprising:

data communication means for communicating data;

data converting means for converting data from said data communication means and data from the data processing terminal into bit map image data; and reproducing means for reproducing the bit map image data,

wherein said data converting means has a first mode in which said reproducing means reproduce the data from said data communication means, and a second mode in which it sends the data from said data communication means to the data processing terminal, and wherein said data converting means receives command information according to a page description language from the data processing terminal, and selects one of the first mode and the second mode in accordance with the command information.

57. An image communication apparatus according to claim 56, wherein said data communication means includes means for generating managing information and setting information in said data communication means, and wherein said data converting means converts the managing information and the setting information from said data communication means into bit map image data.